

II. REMARKS/ARGUMENTS

A. Remarks.

Claims 1 through 31 stand rejected under 35 U.S.C. § 112, first paragraph, on the basis that these claims fail to comply with the enablement requirement. More specifically it was asserted that use of the terms Class I and Class V would not be known to those skilled in the art of explosives. Claims 1 through 31 also stand rejected under 35 U.S.C. § 112, second paragraph for purportedly failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-6, 8-20, and 22-31 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hetz, U.S. Patent No. 5,902,954 in view of Wallace, II et. al., U.S. Patent No. 5,468,313. Claims 7 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Hetz '954 in view of Wallace, II et. al. '313 and further in view of Renfro et. al., U.S. Patent No. 6,619,176.

B. Response

1. 35 U.S.C. § 112, first paragraph

Claims 1 – 31 stand rejected under 35 U.S.C. § 112, first paragraph on the basis of not complying with the enablement requirement. It was stated that the claims contain subject matter insufficiently described in the specification to enable one skilled in the art to practice the invention. It was further urged that these claims and the specification reference explosives of Class I and Class V and that one skilled in the art would not be aware of these terms. Applicants respectfully disagree with this rejection.

In response, claims 10, 13, 24, 25, 34, and 35 are the only claims that contain a reference to a "class" of explosive. Accordingly this rejection is not applicable to the remaining claims. Applicants further refute the assertion that the "class" terminology with regard to explosives is not known to those skilled in the art. For example, in Table II of the military standard MIL-DTL-45444C, a description is clearly presented of these classes and their respective particle sizes and distributions. A copy of Table II is attached herewith for the convenience of the Examiner. It is therefore respectfully requested that the rejection of claims 1 – 31 under the first paragraph of 35 U.S.C. § 112 be reconsidered and removed.

2. 35 U.S.C. § 112, second paragraph

Claims 1 – 31 stand rejected under the second paragraph of 35 U.S.C. § 112 for allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter that the applicant regards as the invention. Applicants respectfully disagree. As amended herein, independent claims 1 and 17 recite a shaped charge with a liner and explosive, where the explosive can be initiated solely by a shock wave. With reference to lines 18 – 24 on page 9 of the application as filed a shaped charge liner of the present invention is clearly described as having an explosive whose detonation could be ignited solely by a shock wave. As such, independent claims 1 and 17 are definite and clearly point out and distinctly claim the subject matter that the applicants regard as at least one embodiment of the invention. For these reasons, and for the reasons stated in response to the rejection under the first paragraph of this section, applicants' respectfully request that the rejection of these claims under this section be reconsidered and removed.

3. 35 U.S.C. § 103 - Hetz '954 and Wallace et al. '313

Claims 1-6, 8-20, and 22-31 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Hetz '954 in view of Wallace et al. '313. Hetz '954 was cited for the proposition of disclosing a shaped charge with a housing and an explosive such as RDX or HMX. Wallace et al. '313 was cited as teaching an explosive comprising a bimodal mixture of HMX. It was therefore concluded that it would have been obvious to one skilled in the art to use the explosive taught by Wallace with the shaped charge of Hetz.

In response, to sustain a rejection under 35 U.S.C. § 103(a) a prima facie case of obviousness must be established. M.P.E.P. § 2142. To establish a prima facie case of obviousness three basic criteria must be met. First, there must be some suggestion or motivation either in the references themselves or in the knowledge generally available to one of ordinary skill in the art to modify the reference or to combine reference teachings. *Id.* Second, there must be a reasonable expectation of success. *Id.* Finally, the prior art references (or references when combined) must teach or suggest all the claim limitations. *Id.*

Amended claims 1 and 17 of the present application both concern a shaped charge having a liner and explosive, where the explosive is capable of being ignitable by a shock wave. Neither Hetz '954 nor Wallace et al. '313 contain references to a shaped charge having such an explosive. In contrast, Hetz '954 refers to the need for "accelerator explosive" disposed in a lower chamber 22A (see Figures 2A and 2B) that transmits a detonating signal to the shaped charge 1 (lines 8 – 13, column 4). As such, neither of these references contain ample disclosure sufficient to support a rejection of claims 1 and 17 and thus should be removed as a basis for the rejection of claims 1 and 17 under 35 U.S.C. § 103(a). Furthermore, since claims 2-16 and 18 -

31 depend (either directly or indirectly) from claims 1 or 17, the rejection of these dependent claims under 35 U.S.C. § 103(a) in light of Hetz '954 and Wallace et al. '313 should be removed as well.

4. 35 U.S.C. § 103 - Hetz '954, Wallace et al. '313, and Renfro et. al. '176

Claims 7 and 21 stand rejected under Hetz '954 in view of Wallace et al. '313 and further in view of Renfro et. al. '176. Hetz '954 and Wallace et al. '313 were cited as they were stated to apply to claims 1 – 6 and 8 – 20. Renfro et. al. '176 was cited as teaching that explosive materials such as HMX are coated and blended with binders and pressed to approximately 90% of their theoretical maximum density into a shaped charge case. Based on the aforementioned suppositions it was concluded that it would have been obvious to those of ordinary skill in the art to press the propellant taught by Hetz to a certain density as suggested by Renfro.

In response, as noted above, sustaining a rejection under 35 U.S.C. § 103(a) requires that the prior art references teach or suggest all of the claim limitations. Like Hetz '954 and Wallace et. al. '176, Renfro et. al. '176 does not teach or suggest the elements of claims 1 and 17. Since claims 7 and 21 depend from claims 1 and 17 respectively, claims 7 and 21 are therefore non-obvious in light of the teachings of Renfro et. al. '176. Thus it is respectfully requested that the rejection of claims 7 and 21 in view of Renfro et. al. '176 be reconsidered and withdrawn.

III. CONCLUSION

It is respectfully urged that in light of the above stated amendments and submissions that the claims of the above referenced application are in compliance with the first and second paragraph of 35 U.S.C. § 112. Furthermore, it is urged that applicants' claims are patentable in light of the prior art and that the rejections of claims 1-31 under 35 U.S.C. § 103(a) should be

removed. It is believed that the foregoing response is full and complete. Applicants respectfully request reconsideration of the instant application in light of the foregoing response and amendments.

Should the Examiner have any questions, comments or suggestions in furtherance of the prosecution of the application, the Examiner is invited to contact the Applicants' representative by telephone or fax.

Respectfully submitted,

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MIL-DTL-45444C

Table II. Granulation

| Through U.S. Standard Sieve No. | Class 1 Wt. Percent | Class 2 Wt. Percent | Class 3 Wt. Percent | Class 4 Wt. Percent | Class 5 Wt. Percent | Class 6 Wt. Percent |
|--|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
|--|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|---------------------------|

| | | | | | | |
|-----|---------|--------|----------|---------|--------|---------|
| 8 | | | | 100 | | |
| 12 | | | 99 min ✓ | 85 min | | 99 min |
| 35 | | | | 25 ± 15 | | |
| 50 | 90 ± 6 | 100 | 40 ± 15 | | | 90 min |
| 100 | 50 ± 10 | | 20 ± 10 | 15 max | | 65 ± 15 |
| 120 | | 98 min | | | | |
| 200 | 20 ± 6 | | 10 ± 10 | | | 30 ± 15 |
| 325 | 8 ± 5 | 75 min | | | 98 min | 15 ± 10 |

3.2.2 Use of virgin HMX only. HMX covered by this specification shall consist of virgin HMX only (see 6.7).

3.3 Process controls. The contractor shall submit a Process Control document to the Government specifying the process variables which are considered crucial for the production of HMX. The Process Control Document shall be submitted 30 days prior to commencement of production in accordance with 4.2.

3.4 Workmanship. The manufacturer shall use procedures and controls which assure that the HMX produced does not contain foreign material such as dirt, rust, paint or metal chips, etc., and that the safety and reliability of the explosive are not compromised. Compliance with this requirement shall be as specified in 4.7.9.

3.5 Product certification. No HMX material whether produced for military or commercial use may be represented as meeting the requirements of this detail specification unless it complies with all requirements contained in Section 3. The process control document (see 3.3), test data for first article inspection (see 4.4) and conformance inspection (see 4.5) shall be submitted to the Technical Agency (see 6.9) for evaluation, approval and certification on compliance with MIL-DTL-45444.

4. VERIFICATION

4.1 General provisions. Unless otherwise specified in the contract or purchase order, the contractor is responsible for the performance of all inspection requirements (examinations and tests) as specified herein. Except as otherwise specified in the contract or purchase order, the contractor may use his own or any other facilities suitable for the performance of the inspection requirements specified herein, unless disapproved by the Government. The government reserves the right to perform any of

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